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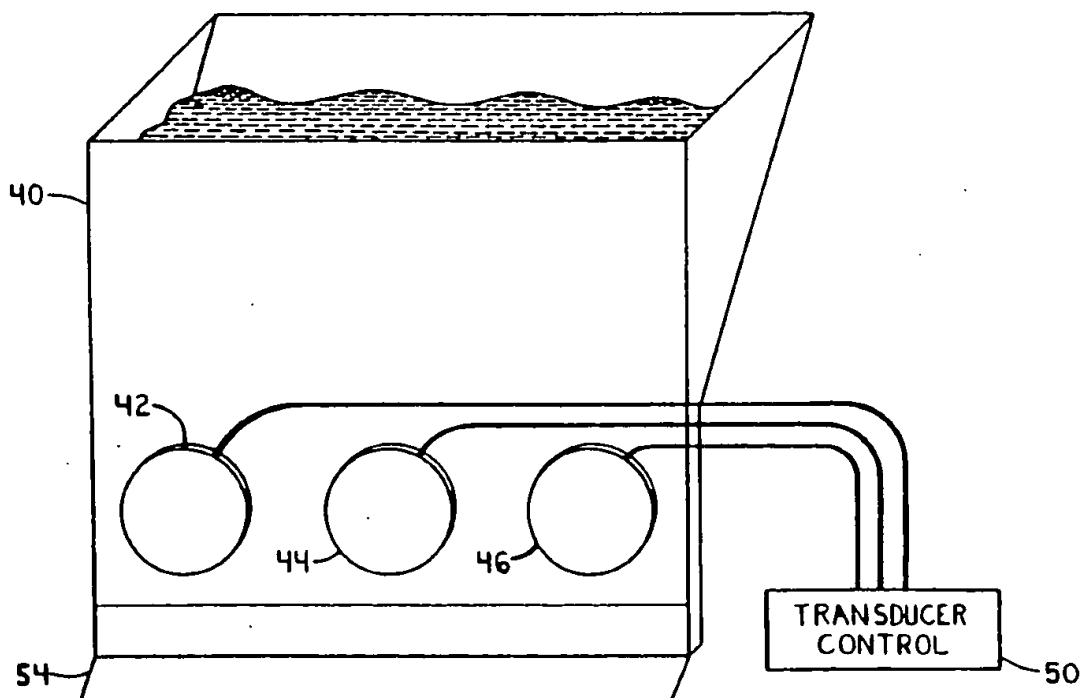
[45] Date of Patent: **Jul. 14, 1992****[54] METHOD FOR CONTROLLING VISCOUS INK APPLICATION IN A PRINTING PRESS**[75] Inventor: **Thomas A. Fadner, LaGrange, Ill.**[73] Assignee: **Rockwell International Corporation, El Segundo, Calif.**[21] Appl. No.: **676,050**[22] Filed: **Mar. 27, 1991**[51] Int. Cl.³ **B41F 31/08**[52] U.S. Cl. **101/365; 101/366; 101/483**[58] Field of Search **101/366, 349, 350, 363, 101/364, 489, 484, 483, 211, 170; 346/140 R, 140 A****[56] References Cited****FOREIGN PATENT DOCUMENTS**

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[57] ABSTRACT

Method and ultrasonic ink metering system for applying ink to a roller 14 in a printing press; the system comprising: an ink supply 20 containing ink; means 22 for pressurizing said ink in said ink supply 20; at least one ink metering device 10 having an internal passageway 30, said internal passageway 30 having an input 32 connected to said ink supply 20 and having an output 36, said metering device 10 also having a nozzle 34 connected to said output 36 of said internal passageway 30; at least one piezoelectric transducer 26 attached to said nozzle 34; and variable means 24 for operating said at least one piezoelectric transducer 26 in a power input range; wherein at least the power input of operation of said at least one piezoelectric transducer 34 determines the quantity of ink applied to the roller 14.

16 Claims, 6 Drawing Sheets

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TITLE: Method for controlling viscous ink application in a printing press

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In one embodiment of the present invention the metering system has a plurality of ink metering devices or modules, each having a piezoelectric transducer attached thereto, arranged to supply ink to a plurality of portions across the width of a press-wide roller. The variable means for operating the piezoelectric transducers associated with the ink injectors has means for individually adjusting the voltage and therefore the vibratory amplitude of operation of the piezoelectric transducers individually adjusting the voltage of operation of the piezoelectric transducers and therefore of the vibratory amplitude of the transducers characteristic ultrasonic frequency wave. Doing so provides individual variation of the quantity of ink applied to each portion of the width of the roller. Thus the present invention can be used in ink supply systems for example, in newspaper printing press units in which portions of the width of the printed page may require a different amount of ink in order to maintain the proper scale of printed ink optical density for that portion of the page.

The present invention has general applicability for controlled variable viscous fluid metering devices and is advantageously utilized in a printing press of the type in which a plurality of vertical columns or

portions of a page width
that is to be printed need to be individually controlled
with regard to the
quantity of ink applied to an inking roller of the press.
Printing presses are
well-known in the prior art which have pressman operated or
push-button
digitally controlled columns or keys or zones having
correspondingly zoned ink
input devices such as, for instance, eight injectors per 16
inch wide page in
newspaper printing. All of these systems contain or rely
upon some form of
adjustable and/or moving mechanical parts or pump assembly
to meter ink onto an
appropriate press roller. Generally, the more automatic
the ink input device,
the more complicated is the metering device. There is need
for a simple but
accurate automatic inking device having minimal complexity.